

1870MNRAS...30..173A

Years	1864	5 very good days	10 fair days	2 indifferent
	1865	12 „	4½ „	½ „
	1866	6 „	9 „	2 „
	1867	8 „	5 „	3 „
	1868	11 „	5 „	1 „
	1869	7 „	9 „	1 „

which I think we may consider very satisfactory.

On his Photographs taken during the Total Solar Eclipse, Aug. 7, 1869. By Commander Ashe.

(Letter addressed to the Editor of the Monthly Notices.)

In the *Monthly Notices* of the Astronomical Society of Feb. 11, 1870, in the Council Report, at page 108 (in reference to the four negatives taken during totality at Jefferson Town) are these words, — “Unfortunately, in photographs 3 and 4, there is evidence of the disturbance of the telescope during the exposure of the sensitive plate.”

Now I beg to state there is no evidence of the sort, and by the enclosed print of an enlarged copy of No. iv. I clearly prove that no disturbance of the telescope took place. I have given ample evidence to the Astronomer Royal that the telescope was not disturbed; but if there was nothing else, the photograms taken at Des Moines (the next station to us), would prove it, for, in the photogram taken near the end of totality, are seen the stumps of the three parallel planes of light that are seen in No. iv. photogram at E. My negative was taken as near the limb of the Sun as it is possible to take it, for just as I closed the slide the Sun burst out, and this remarkable photogram shows two bright bands divided by a dark band. What are they? They are crossed by rays of light that do not radiate from the Sun’s centre, but are all parallel to each other. It must be remembered that no other party was looking at the totality at the same time that we were, for just as it ended at Jefferson it commenced at Des Moines.

Now, with reference to my photograms “confirming what has already been stated in regard to the identity of form preserved by the protuberances,” I will now relate a fact that was seen by all at Jefferson, and by Mr. Falconer, whose address is Alexander Plytts Falconer, Esq., Bath County Club, Bath, and may be referred to. The point of light that is seen in No. i., and is described by all the American astronomers, on the “great protuberance” — whilst I was waiting for No. iii. plate — shot out to an enormous length, at least one-third longer than it is seen in No. iii. photogram; and when it reached its greatest height (which

it did in a few seconds), the top was blown off at right angles and came to a point, just like a flame acted on by a blow-pipe. The lower part was deep red, getting lighter, and the part blown off was a brilliant white light. Now then let us investigate the evidence. Although this is my second total eclipse, still my surprise and love of the marvellous might be supposed to have produced in my bewildered mind an impression that did not exist in reality. If I were the only one who saw it, then it might very readily be put down to fancy, but all those who came out from the town, and were standing round the observatory, saw it, and the crowd produced that sensational murmur that they did when the totality commenced. One man described it as a crooked piece of iron taken from a forge "white hot" at the top. But Mr. Falconer, who was then travelling in America, gave me a very good drawing of it, and who no doubt will, if written to, corroborate my statement.



Now I state that a few seconds after it had reached its greatest height, it lost the flame-like appearance, and became a duller red, and quickly reduced its height; and when No. iii. negative was taken, it was apparently a cinder; and when this negative is examined by a lens, it shows cracks and various lines, that were also seen by Mr. Vail, who observed the eclipse with a small telescope. Now, supposing that we *all* agreed to foist this marvellous story on the public, still there is the photogram No. iii., which shows an enormous protuberance, which was fast crumbling away; and on examining No. iv. negative, we see it greatly reduced; but still it has the same characteristic form. Now look at the "Des Moines" photogram. Here we see that it has assumed the form of a great heap of cinders, but the long exposure, 66 seconds, has softened the outlines.

After the protuberance has taken this form, then it naturally retains it for some time, and thus all the other stations to the eastward have very similar photograms.

In common justice to our party I have to request that this communication may be printed in the *Monthly Notices* of the Society. And, in conclusion, I beg that the negatives may be returned to me, as I am about to print my Report.

Observatory, Quebec, April 14, 1870.

A Committee appointed by the Council unanimously report that, in their opinion, there was a decided movement of the instrument at the time the photograph was taken. This conclusion they arrived at from an examination of the chromosphere close to the Moon's limb, as well as from an examination of the prominences.